

REMARKS

The present application has been reviewed in light of the Office Action dated August 11, 2009. Claims 1, 2, 5-18 are presented for examination, of which Claims 1 and 10-18 are in independent form. Claim 4 has been cancelled, without prejudice to or disclaimer of the subject matter presented therein. Claims 1 and 10-18 have been amended to define Applicant's invention still more clearly. Support for the claim amendments can be found in the original disclosure, for example in Figures 1A-3C and the accompanying description, and therefore, no new matter has been added. Favorable reconsideration is requested.

Claims 1, 2, and 4-18 are rejected under 35 U.S.C. 103(a), as being obvious over the publication by Lee, entitled "JPEG 2000 Part I Final Committee Draft Version 1.0" (hereinafter "Lee"), in view of U.S. Patent Application Pub. No. 2002-0131084 (Andrew). In addition, Claims 1, 2, and 10-18 are rejected under 35 U.S.C. 103(a), as being obvious over U.S. Patent No. 6,462,681 (Vleuten) in view U.S. Patent Application Pub. No. 2002-0131084 (Andrew).

In response, while not conceding the propriety of the rejections, independent Claims 1 and 10-18 have been amended. Applicant submits that as amended, these claims are allowable for the following reasons.

At the outset, Applicant notes that the independent claims have been amended to include the features of Claim 4. And since Claim 4 is not included in the rejection of claims over the citations to Vleuten and Andrew, and the features of Claim 4 are not understood to be disclosed or suggested by these citations, amended independent Claims 1 and 10-18 are allowable over the citations to Vleuten and Andrew. Therefore, Applicant

respectfully requests that the rejection of Claims 1, 2, and 10-18 over the citations to Vieuten and Andrew now be withdrawn.

As to the rejection over the citations to Lee and Andrew, Applicant respectfully submits that amended independent Claims 1 and 10-18 are allowable over these citations for the following reasons.

More specifically, the citations to Lee and Andrew are not understood to disclose or suggest encoding, if the scans are a DC most significant scan, the determined active scans of bitstream data encoded using the discrete cosine transformation and discarding the determined inactive scans without encoding the inactive scans, wherein the encoding comprises entropy encoding the current scan of bitstream data, if the attribute of the current scan is active, and otherwise proceeding to a next scan of bitstream data, as recited by amended Claim 1. In addition, the citations to Lee and Andrew are not understood to disclose or suggest entropy coding, if the partitions are a perceptually significant partition, each active partition of the blocks of transformed coefficients while discarding the inactive partitions without encoding the inactive partitions, wherein the entropy coding comprises entropy encoding the current scan of bitstream data, if the attribute of the current scan is active, and otherwise proceeding to a next scan of bitstream data, as recited by amended Claim 11.

The Office Action's rejection rests on equating the word "terminate" in Lee to concept of inactive, recited in the claims. Applicant submits that there is no reasonable factual basis provided in the Office Action for such an interpretation. This can be seen as follows.

Page 2 of the Office Action quotes page 99 of Lee as follows: "arithmetic code shall be terminated either at the end of every coding pass or only at the end of every code block". The Office Action then states that the "left-over may not be coded and is thus inactive". However, the Office Action provides no support in Lee or in any other reference for this assertion. Moreover, Applicant submits that the quoted portion of Lee does not support the Office Action's conclusion. All the quoted portion states is that the arithmetic encoding is terminated either at the end of every coding pass or only at the end of every coding block. There does not appear to be any discussion that the left-over may not be coded or is inactive. A more reasonable interpretation of this passage is that each coding pass is terminated once the encoding is complete and that each code block is also terminated once the code block has been encoded. Such an interpretation provides far more reasonable interpretation of the cited section of Lee, since the termination is at the end of, not midway or partway through, the coding pass.

Page 3 of the Office Action states that "All passes can be optionally encoded", supporting this conclusion with the following quote from page 100 of Lee: "According to the termination style selected, a certain number of coding passes are performed before the arithmetic code is terminated. The truncated length of the bit stream segment...". The Office Action concludes from this passage that termination means stopping encoding, so that not everything is coded. Yet the Office Action provides no evidence or support for these conclusions in the reference. Moreover, the Office Action's conclusions require that the Office ignore the word "every" in the above-noted quote from page 99 of Lee that "...arithmetic coder shall be terminated either at the end of every coding pass or only at the end of every code-block". It would seem that the "left-over" is padded.

Applicant submits that Table D8 of Lee shows that it is possible for each coding operation to be terminated on every pass. More specifically, this table is understood to demonstrate that when the termination style shown in the right column is used, then a certain number of coding passes, (in this case 1) are performed before the arithmetic coder is terminated. The termination is understood to be used to show the end of that encoding section by inserting a termination marker, and not that the section has finished coding early. This interpretation is also supported by the section of Lee containing the page-100 quote — section D.4.2 Arithmetic Encoding Termination. This section starts with the statements: "This termination is required if the predictable termination flag is 1 in the COD or COC markers (see Annex A.6.1 and Annex A.6.2). Otherwise, it is allowed, but not required". And predictable termination is described in section D.6.2 which states: "When all the bits from a coding pass have been assembled by the encoder, if necessary the last byte is packed to a byte boundary with an alternating sequence of 0's and 1's. This sequence should start with a 0 regardless of the number of bits to be padded." Thus, the "predictable termination" of Lee has nothing to do with stopping the encoding of a coding pass, but is concerned with inserting a termination marker to indicate the end of a coding operation. This conclusion makes sense, since as the COC and COD values are stored in the header information, as the termination pattern will be required by the decoder to allow for the proper decoding of the coding pass. If each coding pass is terminated, then the decoder will need to know this information so that the encoding data can be properly decoded.

Table D6 of Lee also provides data that further explains the operation of termination. In Table D6, the coefficient values 10, 1, 3 and -7 are understood to be encoded over a number of coding passes. The coding passes are understood to start with a

clean-up pass as shown in the first row below the coefficient values. This clean-up-pass row contains values 1+, 0, 0, 0. Values for the coefficients are understood to be encoded in each of the coding passes. If, as the Office Action asserts, an earlier coding pass is stopped before completion, then the information encoded in the subsequent coding passes will not allow reconstruction of the bits skipped earlier. As a result, from a technical point of view, the concept of not completing the encoding of earlier coding passes does not appear to be a valid approach.

The title of the Table D8 of Lee is "Example of arithmetic coder termination patters". Table D8 is understood to show a) where the coding passes can be terminated, b) the selection of the termination pattern by the values of COD and COC, c) two example termination patterns, the first being terminating only at the end of all the coding passes, and the second being for termination after every pass, d) the information provided in the boxes of the table is the information that is encoded, and e) the text "AC, terminate", which indicates that the information stored is arithmetically coded and followed by a terminating marker. This view is reinforced by Table A-17 of Lee, entitled "Code-block style for the SPcod and SPcoc parameters", on page 31. This table is understood to detail a number of settings for code-block style, such as indicating if selective arithmetic coding bypass will occur, and to show that one bit is a flag indicating if there is a termination on each coding pass. Such a structure is seen in Table D8, which is understood to show that each pass is terminated using a termination marker.

Further, if, as is asserted by the Office Action, the termination mentioned in Lee is concerned with stopping the coding operation before the coding operation has finished, Applicant asks why the terminating condition is not mentioned in Lee.

In summary, Applicant submits that it is inappropriate for the Office Action to quote and interpret portions of Lee out of context to read such excerpts on the claims, without considering this document in its entirety. Applicant further submits that any reasonable interpretation of Lee as a whole would clearly show that the encoding steps recited by Claims 1 and 11 are not disclosed or suggested therein.

Since amended Claims 1 and 11 are understood to recite at least one encoding feature not disclosed or suggested by the citations to Lee and Andrew, Applicant submits that the Office has not yet satisfied its burden of proof to establish a prima facie case of obviousness against amended Claims 1 and 11. Therefore, Applicant respectfully requests that the rejection of amended Claims 1 and 11 be withdrawn. And since the other independent claims include an encoding feature similar to that recited in Claims 1 or 11, those claims also are believed to be patentable for at least the same reasons as Claims 1 and 11.

The other rejected claims in this application depend from one or another of the independent claims discussed above and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual consideration or reconsideration, as the case may be, of the patentability of each claim on its own merits is respectfully requested.

If the Office continues to reject the claims by relying on the citation to Lee, it is respectfully requested that all assumptions, inferences, and conclusions be more clearly supported by citations to specific portions of Lee, that the Lee citation be considered as a whole, and that the Office respond to each of the arguments presented above.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

No petition to extend the time for response to the Office Action is deemed necessary for this Amendment. If, however, such a petition is required to make this Amendment timely filed, then this paper should be considered such a petition and the Commissioner is authorized to charge the requisite petition fee to Deposit Account 50-3939.

Applicant's undersigned attorney may be reached in our Washington D.C. Office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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